

is turned off when the user releases the button. Although two push button switches are used in the embodiment, the number of push button switches may of course be one or more than two. The number of push button switches may be selected according to the required function.

[0055] The coordinate input device **1** according to the embodiment having the above-described configuration can be used as, for example, a pointing device of a notebook personal computer. In this case, by scanning the upper surface of the coordinate detector **11** with a finger or a pen, a part of the electric flux lines formed between the transparent electrodes **16a** and **16b** shown in FIG. 4 is absorbed by the finger or the pen at the positions where the transparent electrodes **16a** and **16b** cross, and the current applied to the transparent electrodes **16b** varies and thus the electrostatic capacitance varies. The variation in the electrostatic capacitance is converted to a variation in an electrical signal by the control circuit **12a** provided in the controller **12**, and the variation in the electrical signal is externally output as coordinate position information. Then, the cursor displayed on the display of the personal computer moves based on the coordinate position information.

[0056] In the coordinate input device **1** of the present invention, since all the members of the coordinate detector **11** of the coordinate input element **10** are formed by transparent material, the user can see the display on the liquid crystal display device **20** through the coordinate detector **11**. Consequently, by displaying the operating method, hints for operation, and so forth of the coordinate input element **10** on the liquid crystal display device **20**, a user unaccustomed to operate the device can easily operate the coordinate input element **10**. The liquid crystal display device **20** can display arbitrary information. Accordingly, by changing information to be displayed as required, the usability of electronic equipment including the coordinate input device **1** can be significantly improved.

[0057] The control circuit **12a** provided in the coordinate input element **10** of the embodiment scans the transparent electrodes **16a** and **16b** of the coordinate detector **11** while the coordinate input element **10** is not being operated (when a finger or a pen is not in contact with or is not approaching the coordinate detector **11**) and stores an electrical signal obtained by the scan as a reference signal. Also, the control circuit **12a** subtracts the reference signal from the detection signal obtained by scanning the transparent electrodes **16a** and **16b** so as to correct the detection signal during an operation of the coordinate input element **10** (when the surface of the coordinate detector **11** is scanned by a finger or a pen).

[0058] That is, by comparing the electrostatic capacitance of the coordinate detector **11** while no operation is performed and the electrostatic capacitance of the coordinate detector **11** while an operation is performed, the change in the electrostatic capacitance caused by a finger or a pen during an operation can be extracted as a detection signal. Also, even when the electrostatic capacitance is gradually disturbed by external influences, the change in the electrostatic capacitance caused by the disturbance can be canceled by performing the above-described correction. Accordingly, a malfunction is less likely to occur in the coordinate input device.

[0059] Further, with the above-described correction method, a noise disturbing the coordinate detector **11** from

a circuit of electronic equipment including the coordinate input device **1** and the drive circuit of the display device can be canceled in the same way. Therefore, the coordinate input device **1** operates extremely stably.

[0060] Also, since a ground layer comprising metal is not provided at the bottom of the coordinate detector **11**, extremely high light transmittance can be realized. On the other hand, the electrostatic capacitance generated between the transparent electrodes **16a** and **16b** is likely to be unsteady due to the variation in the electrostatic capacitance itself and noise caused by driving the control circuit. However, the variation in the electrostatic capacitance can be canceled by the function of the above-described control circuit **12a**.

[0061] In addition, in the coordinate input device **1** of the embodiment, the coordinate input element **10** is preferably operated in a mode wherein the frequency for scanning the transparent electrodes **16a** is different from the frequency for driving the liquid crystal display device **20**. With this configuration, a malfunction of the coordinate input element **10** and distortion of the display of the liquid crystal display device **20** can be prevented, and thus the coordinate input device **1** of the present invention can operate stably.

[0062] In the above-described embodiment, the controller **12** is placed on a side of the coordinate detector **11**. However, the controller **12** can be placed on the back side of the liquid crystal display device **20**, as shown in FIG. 6, if the substrate **16** is a flexible substrate. With this configuration, the casing **30** can be miniaturized in both cases where the liquid crystal display device **20** is a reflective-type and a transmissive-type, and thus the space for the coordinate input device **1** can be reduced in proportion to the reduction in size of the coordinate input element **10** shown in FIG. 1. Therefore, the space required in electronic equipment can be effectively used.

[0063] The substrate **16** on which the coordinate detector **11** and the controller **12** are formed is a flexible substrate in the above-described embodiment. However, in order to achieve the above configuration, at least the wiring portion for connecting the coordinate detector **11** and the controller **12** may be a flexible substrate. That is, the coordinate detector **11** and the controller **12** are formed on separate substrates and are connected by a flexible wiring board (flexible printed board) so that the coordinate detector **11** and the controller **12** may be electrically connected by the circuit wiring lines formed on the wiring board.

What is claimed is:

1. A coordinate input device comprising:

a coordinate detector including:

- a first insulating layer which has transparency and which is formed at the top;
- a first electrode layer having a plurality of linear transparent electrodes formed in parallel on the lower surface of the first insulating layer;
- a second insulating layer which has transparency and which is formed on the lower surface of the first electrode layer;
- a second electrode layer having a plurality of linear transparent electrodes which are aligned in parallel